

## Scott River Valley Groundwater Basin

- Groundwater Basin Number: 1-5
- County: Siskiyou
- Surface Area: 63,900 (100 square miles)

### Basin Boundaries and Hydrology

The Scott River Valley Groundwater Basin is a narrow alluvial floodplain about 28 miles long and ½- to 4-miles wide. The basin is bounded on the north and northwest by the Scott Bar Mountains, on the west and southwest by the Salmon Mountains, on the south and southeast by the Scott Mountains, and on the east by a northern extension of the Trinity Mountains. Generally, the contact between the valley alluvium and rocks dating from Pre-Silurian to Cretaceous defines the basin boundary. Annual precipitation within the basin is estimated to be 21- to 25-inches.

### Hydrogeologic Information

#### ***Water-Bearing Formations***

Quaternary stream channel, floodplain, and alluvial fan deposits are the primary water-bearing deposits in the basin.

**Holocene Stream Channel Deposits.** The stream channel and floodplain alluvial deposits consist of unconsolidated sand and gravel with clay deposited by Scott River and its major tributaries. The most permeable alluvium underlies the east side of Scott Valley between Etna and Fort Jones in an area averaging 1½ miles in width on the floodplain of the Scott River. Large irrigation wells in this area range from 1,200- to 2,500-gpm. Specific capacities range from 67- to 100-gpm per foot of drawdown (Mack 1958). The permeability of the channel deposits ranges up to 1,000 gpd per square foot (SWRCB 1975). Thickness of the deposits ranges up to 260 feet and may exceed that depth near Scott River (SWRCB 1975). Alluvium within east Scott River tributaries has lower permeability and likely provides sufficient quantity of groundwater for domestic wells.

**Pleistocene to Holocene Alluvial Fan Deposits.** The alluvial fan deposits consist of sandy clay with boulders deposited by lateral tributaries along the western valley margin. These surficial deposits grade towards the valley into fine sand and clay and interfinger with Scott River floodplain deposits. Fan deposits may also underlie the stream channel alluvium of the eastern valley tributaries. Generally, the alluvium deposited as fans is less permeable than the alluvium beneath the Scott River floodplain. The most permeable sediments along the western mountain front are found in the large gravelly fans deposited by West Patterson, Kidder, Etna, and Shackleford creeks and in stream channels.

Older alluvial deposits are also found along the valley margins. These consist of remnants of alluvial fan and terrace deposits, primarily of sand and silty clay with boulders. The older alluvium is not considered to be an important groundwater source.

### **Recharge Areas**

The major source of recharge into stream channel and floodplain deposits between Etna and Fort Jones is underflows and surface runoff originating upstream of the vicinity of Etna. This is supplemented by underflow from the western tributaries (SWRCB 1975).

### **Groundwater Level Trends**

Analysis incomplete.

### **Groundwater Storage**

**Groundwater Storage Capacity.** Groundwater storage capacity to a depth of 100 feet is estimated to be 400,000 acre-feet for a surface area of 39,900 acres with specific yield ranging from 5 to 15 percent (Mack 1958).

### **Groundwater Budget (Type B)**

Estimates of groundwater extraction for the Scott River Valley Basin are based on a survey conducted by the California Department of Water Resources during 1991. Surveys included land use and sources of water. Estimates of groundwater extraction for agricultural and municipal/industrial uses are 23,000, and 1,300 acre-feet respectively. Deep percolation of applied water is estimated to be 13,000 acre-feet.

### **Groundwater Quality**

**Characterization.** The major water type in the basin is calcium-magnesium bicarbonate water. Total dissolved solids range from 47- to 1,510-mg/L, averaging 258 mg/L (DWR unpublished data).

**Impairments.** Locally high concentrations of iron, manganese, sodium, chloride, total dissolved solids, calcium, and ASAR occur in the basin. Potassium, sulfate, nitrate, fluoride, and boron occur in negligible amounts (Mack 1958). Hard waters occur locally on the eastern side of the valley. Northward from Callahan, these areas include McConnahue and Hamlin Gulches and Moffett Creek (Mack 1958).

### **Water Quality in Public Supply Wells**

Constituent Group <sup>1</sup>	Number of wells sampled <sup>2</sup>	Number of wells with a concentration above an MCL <sup>3</sup>
Inorganics – Primary	4	1
Radiological	0	0
Nitrates	4	0
Pesticides	1	0
VOCs and SVOCs	1	0
Inorganics – Secondary	4	1

<sup>1</sup> A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).

<sup>2</sup> Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

<sup>3</sup> Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

## Well Characteristics

Well yields (gal/min)		
Irrigation	Range: 30 – 3000	Average: 794 (27 Well Completion Reports)
Total depths (ft)		
Domestic	Range: 17 – 460	Average: 104 (666 Well Completion Reports)
Irrigation	Range: 13 – 400	Average: 106 (167 Well Completion Reports)

## Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR	Groundwater levels	6 wells semi-annually
DWR	Miscellaneous Water Quality	10 wells biennial
Department of Health Services and cooperators	Miscellaneous Water Quality	5

## Basin Management

Groundwater management:	Scott River and the region of interconnected groundwater is adjudicated. Siskiyou County adopted a groundwater management ordinance in 1998.
Water agencies	
Public	Scott Valley ID
Private	

## Selected References

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## **Errata**

Changes made to the basin description will be noted here.